

CLAIMS

1. A holographic memory reproduction apparatus for
irradiating a holographic recording medium on which wavelength
5 information of a recording laser beam is recorded as a
wavelength address hologram with a reproducing laser beam from
a semiconductor laser to reproduce information that is
recorded by holographic recording, comprising:

a temperature adjustment device for controlling a
10 temperature of the semiconductor laser; and a wavelength
control device for controlling a wavelength of the reproducing
laser beam to be approximately coincident with a wavelength of
the recording laser beam by adjusting a temperature of the
semiconductor laser via the temperature adjustment device
15 based on the wavelength information reproduced from the
wavelength address hologram by the reproducing laser beam,
prior to reproduction of the information recorded on the
holographic recording medium with the reproducing laser beam.

2. The holographic memory reproduction apparatus
20 according to claim 1, wherein

the wavelength control device performs feedback control
for the temperature adjustment device to make an intensity of
a signal beam diffracted from the wavelength address hologram
a constant value or place a detection position of the signal
25 beam at a predetermined position during irradiation with the

reproducing laser beam.

3. The holographic memory reproduction apparatus according to claim 1 or 2, wherein

the wavelength control device has information on an
5 oscillation peak wavelength corresponding to the temperature of the semiconductor laser and is configured to control the temperature of the semiconductor laser to make the oscillation peak wavelength coincident with the wavelength of the recording laser beam.

10 4. A holographic recording and reproduction apparatus for holographically recording information on a holographic recording medium using a recording laser beam and for reproducing the information recorded on the holographic recording medium using a reproducing laser beam, comprising:

15 a semiconductor laser for generating the recording laser beam and the reproducing laser beam;

a temperature adjustment device capable of adjusting a temperature of the semiconductor laser;

a wavelength information recording device for recording
20 wavelength information of the recording laser beam as a wavelength address hologram on the holographic recording medium when the information is recorded on the holographic recording medium with the recording laser beam; and

a wavelength control device for controlling a wavelength
25 of the reproducing laser beam to be approximately coincident

with a wavelength of the recording laser beam by adjusting the temperature of the semiconductor laser via the temperature adjustment device based on a signal beam diffracted from the wavelength address hologram by the reproducing laser beam,
5 when the information recorded on the holographic recording medium is reproduced with the reproducing laser beam.

5. The holographic recording and reproduction apparatus according to claim 4, wherein

the wavelength control device includes a circuit for
10 performing feedback control for the temperature adjustment device to make an intensity of the signal beam diffracted from the wavelength address hologram a constant value or place a detection position of the signal beam at a predetermined position during irradiation with the reproducing beam.

15 6. The holographic recording and reproduction apparatus according to claim 4 or 5, wherein

the wavelength control device has information on an oscillation peak wavelength corresponding to the temperature of the semiconductor laser and is configured to control the
20 temperature of the semiconductor laser to make the oscillation peak wavelength coincident with the wavelength of the recording laser beam.

7. A holographic recording and reproducing method for holographically recording information on a holographic
25 recording medium using a recording laser beam and for

reproducing the information recorded on the holographic recording medium using a reproducing laser beam, comprising:

5 a process of recording wavelength information of the recording laser beam as a wavelength address hologram on the holographic recording medium when the information is recorded on the holographic recording medium with the recording laser beam;

10 a process of irradiating the wavelength address hologram with the reproducing laser beam to reproduce the wavelength information from a diffracted signal beam, prior to reproduction of the information recorded on the holographic recording medium; and

15 a process of adjusting a temperature of a semiconductor laser emitting the reproducing laser beam to make a wavelength of the reproducing laser beam approximately coincident with a wavelength in accordance with the wavelength information based on the reproduced wavelength information.

8. The holographic recording and reproducing method according to claim 7, wherein

20 control is performed to make an intensity of the signal beam diffracted from the wavelength address hologram a constant value or place a detection position of the signal beam at a predetermined position during irradiation with the reproducing laser beam.

25 9. A holographic recording medium on which information is

recorded as a hologram in a data area and wavelength information of a recording laser beam used for recording of the information is recorded as a wavelength address hologram.

10. The holographic recording medium according to claim 9,
5 wherein

the wavelength address hologram is recorded in a lead-in area that is to be accessed prior to an access to the data area when the information is reproduced.